Documentation Sheet

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Title: *Ultra-Wideband Multi-Resonance Negative EM Parameters*

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Keywords: *Metamaterial, Split Ring Resonator (SRR), Negative permittivity (ε) permeability (μ) and refractive index(n).*

Abstract: *A novel split ring resonator (SRR) design is proposed to yield effective negative permeability (μ) for ultra-wide frequency range. A '+' shaped slot-loaded disc is inserted at the centre of the inner-ring rotated SRR. The effect of proposed '+' shaped slot-loaded disc on SRR is studied. It is shown that such loading results in negative value for μ, with a high fractional bandwidth ($\gamma = 0.821$), over a wide frequency band (of 20-30 GHz, with only a slight mismatch in 25.85-26.65 GHz range). The dimension of thin wire is also studied to optimize the design parameters.*